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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,959	11/05/2001	Todd D. Creger	00-608	2767

719 7590 06/23/2008

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EXAMINER	
DAY, HERNG DER	
ART UNIT	**PAPER NUMBER**
2128	

MAIL DATE	DELIVERY MODE
06/23/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/006,959	CREGER ET AL.	
	Examiner	Art Unit	
	HERNG-DER DAY	2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in response to Applicants' Reply ("Reply") to Office Action dated December 26, 2007, filed March 26, 2008.

1-1. Claim 7 has been amended. Claims 1-12 are pending.

1-2. Claims 1-12 have been examined and rejected.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Quist et al., U.S. Patent 6,199,018 issued March 6, 2001 and filed March 4, 1998.

3-1. Regarding claim 1, Quist et al. disclose a method for compensating for variations in modeled parameters of a plurality of machines having similar characteristics and performing similar operations, including the steps of:

establishing a model development machine having a first at least one model to predict a machine parameter (the weight parameters obtained when the laboratory data is used to train the global neural network may be valid for the laboratory tested motors, column 18, lines 32-37; The

site processor 14 will include a data processor running one or more global neural networks for, e.g., predicting the expected life of machine 11, column 19, lines 1-3);

establishing at least one test machine having a second at least one model to predict the machine parameter, the test machine being different from the model development machine (one or more local predictive routines may use that data to provide diagnostic information concerning the appropriate machine 11, column 16, lines 63-65; utilizes a local neural network, … and provides as outputs an indication of the expected life of the motor bearings, column 17, lines 1-10);

obtaining data relevant to predicting the machine parameter on the at least one test machine and relevant to the characteristics and operations of the at least one test machine (the microprocessor 28 is adapted to receive as inputs information provided from a sensor set that is adapted to sense various operating parameters of the machine 11, column 8, lines 14-18);

comparing the data from the at least one test machine to corresponding data of the model development machine (each global neural network running on site processor 14 will have weighting parameters that are initially determined from accelerated testing data but that are refined, over time, in response to actual field collected data, column 19, lines 3-15); and

updating at least one of an estimator and a model of each at least one test machine in response to variations in the compared data (These globally updated weighting parameters may then be downloaded to the local monitoring devices, column 19, lines 15-19).

3-2. Regarding claim 2, Quist et al. further disclose wherein each of the model development machine and the at least one test machine includes a neural network for modeling a parameter of each respective machine (The site processor 14 will include a data processor running one or

more global neural networks, column 19, lines 1-3; each of the local monitoring devices 12 will include a microprocessor running a local predictive neural network, column 18, lines 51-56), and wherein updating at least one of an estimator and a model includes the step of updating an estimator for each neural network in response to variations in the compared data (These globally updated weighting parameters may then be downloaded to the local monitoring devices, column 19, lines 15-19; update one output weighting parameter).

3-3. Regarding claim 3, Quist et al. further disclose wherein each of the model development machine and the at least one test machine includes a neural network for modeling a parameter of each respective machine (The site processor 14 will include a data processor running one or more global neural networks, column 19, lines 1-3; each of the local monitoring devices 12 will include a microprocessor running a local predictive neural network, column 18, lines 51-56), and wherein updating at least one of an estimator and a model includes the step of updating each neural network in response to variations in the compared data (These globally updated weighting parameters may then be downloaded to the local monitoring devices, column 19, lines 15-19).

3-4. Regarding claim 4, Quist et al. further disclose wherein obtaining data includes the step of obtaining data from each test machine relevant to operating characteristics of each respective test machine (the microprocessor 28 is adapted to receive as inputs information provided from a sensor set that is adapted to sense various operating parameters of the machine 11, column 8, lines 14-18).

3-5. Regarding claim 5, Quist et al. further disclose wherein obtaining data includes the step of obtaining data from a work site in which a respective test machine is located, the data including data relevant to characteristics of the work site and operations of the test machine at

the work site (the other RTD transducers are positioned to detect the temperature of the windings of machine 11, the temperature of the machine housing, and/or the temperature of the environment in which machine 11 is operating, column 8, lines 19-26).

3-6. Regarding claim 6, Quist et al. further disclose wherein obtaining data includes the step of obtaining data relevant to aging of each test machine (Another important operating parameter that may be monitored by the local monitoring device 12 is the total elapsed running time of the electric machine, column 16, lines 55-60).

3-7. Regarding claim 7, Quist et al. disclose a method for compensating for variations in modeled parameters of a test machine compared to a model development machine, the test machine being different from the model development machine, including the steps of:

delivering a neural network model from the model development machine to the test machine, the test machine having a separate neural network model (Once this global neural network is trained with the accelerated aging data, the resulting weighting parameters can be downloaded into the data storage devices 29 of each of the local monitoring devices, column 17, line 61 through column 18, line 10);

determining a computed parameter on the test machine (based on that information, provide local diagnostic information concerning the expected life of the machine, column 17, lines 1-5);

estimating the parameter on the test machine with the delivered neural network (predicting the expected life of machine 11, column 19, lines 1-3);

comparing the computed parameter with the estimated parameters (be adapted to receive the field-collected data from the local monitoring devices 12 and use such field collected data to

update the weighting parameters. … each global neural network running on site processor 14 will have weighting parameters that are initially determined from accelerated testing data but that are refined, over time, in response to actual field collected data, column 19, lines 3-15); and

updating at least one of an estimator and the delivered neural network model on the test machine in response to variations in the computed parameter and the estimated parameter (These globally updated weighting parameters may then be downloaded to the local monitoring devices, column 19, lines 15-19).

3-8. Regarding claim 8, Quist et al. further disclose wherein determining a parameter includes the step of calculating the parameter (receives as inputs appropriate normalized bearing temperature information and provides as outputs an indication of the expected life of the motor bearings, column 17, lines 5-10).

3-9. Regarding claim 9, Quist et al. further disclose wherein updating a neural network model includes the step of tuning at least one weight in the neural network model (In accordance with conventional neural network techniques the outputs from the input nodes are appropriately "weighted" such that the value of each output node will correspond generally to the sum of its weighted inputs, column 17, lines 16-22).

3-10. Regarding claim 10, Quist et al. disclose a method for compensating for variations in modeled parameters of a plurality of machines having similar characteristics and performing similar operations with the use of a computer having a processor, the plurality of machines including at least one model development machine and one test machine, including the steps of:

sensing data from each of the plurality of machines relevant to the modeled parameters, characteristics, and operations of each respective machine, the modeled parameters derived from

a model developmental machine being different for each respective machine (the microprocessor 28 is adapted to receive as inputs information provided from a sensor set that is adapted to sense various operating parameters of the machine 11, column 8, lines 14-18);

transmitting the data to the processor (At certain intervals, the local monitoring devices 12 will provide this collected data (and data indicating when a machine 11 fails) to the site processor 14, column 18, lines 61-67);

determining a level of variability of the characteristics of each machine as a function of the data (to sense various operating parameters of the machine 11, column 8, lines 14-18; use these local parameters to generate "site-wide" updated parameters, column 5, lines 27-35; normalization routine, column 12, line 61, through column 13, line 45);

determining a level of variability of the operations of each machine relevant to a respective work site as a function of the data (the temperature of the machine housing, and/or the temperature of the environment in which machine 11 is operating, column 8, lines 19-26; use these local parameters to generate "site-wide" updated parameters, column 5, lines 27-35; normalization routine, column 12, line 61, through column 13, line 45);

determining an aging factor of each machine as a function of the data (Another important operating parameter that may be monitored by the local monitoring device 12 is the total elapsed running time of the electric machine, column 16, lines 55-60; use these local parameters to generate "site-wide" updated parameters, column 5, lines 27-35; normalization routine, column 12, line 61, through column 13, line 45); and

updating at least one of an estimator and a model of each machine encoded in the computer in response to the level of variability of the characteristics of each machine, the level

of variability of the operations of each machine relevant to each work site (These globally updated weighting parameters may then be downloaded to the local monitoring devices, column 19, lines 15-19).

3-11. Regarding claim 11, Quist et al. further disclose determining a level of variability of the operations of each machine relevant to a respective work site includes the step of determining a level of variability as a function of differences in characteristics between each work site (the temperature of the machine housing, and/or the temperature of the environment in which machine 11 is operating, column 8, lines 19-26; a global or super-global neural network may be able to develop weighting parameters that are specific to a particular environmental or load condition, column 19, lines 20-45).

3-12. Regarding claim 12, Quist further disclose determining an aging factor of each machine includes the step of determining a level of variability of operations of each machine as a function of aging of each respective machine (Another important operating parameter that may be monitored by the local monitoring device 12 is the total elapsed running time of the electric machine, column 16, lines 55-60; The processor running the global or super-global neural network may then be able to take this information, develop specific weighting parameters for such machines, column 19, lines 20-45).

Applicants' Arguments

4. Applicants argue the following:

(1) "Applicant has appropriately amended independent claim 7 and requests withdrawal of the Section 112, second paragraph, rejection." (page 7, paragraph 2, Reply).

(2) “Quist *refines* globally updated weighting parameters and downloads the parameters to local monitoring devices. In contrast, independent claim 1 "*compar[es]* the data from the at least one test machine to corresponding data of the model development machine; and updat[es] at least one of an estimator and a model of each at least one test machine *in response to variations in the compared data*" (emphasis added). Quist does not disclose or even suggest, at least, this feature.” (page 8, paragraph 3, Reply).

(3) “Quist describes updating neural networks with data collected from local monitoring devices. In contrast, claim 7 recites "*comparing* the computed parameter with the estimated parameter" (emphasis added). Quist does not disclose or even suggest this feature.” (page 9, paragraph 3, Reply).

(4) “Contrary to the allegations in the Office Action, none of these disclosures disclose or even suggest "determining *a level of variability* of the characteristics of each machine as a function of the data" (emphasis added).” (page 10, paragraph 3, Reply).

(5) “Quist discloses sensing temperature. Quist does not disclose or even suggest the above feature of independent claim 10.” (page 11, paragraph 1, Reply).

(6) “Quist discloses monitoring running time. Quist does not disclose or suggest "determining an aging factor."” (page 11, paragraph 2, Reply).

Response to Arguments

5. Applicants’ arguments have been fully considered.

5-1. Applicants’ argument (1) is persuasive. The rejections of claim 7 under 35 U.S.C. 112, second paragraph, in Office Action dated December 26, 2007, have been withdrawn.

5-2. Applicants' argument (2) is not persuasive. Without variations in the *compared* data, there is no motivation to refine the weighting parameters. Furthermore, claim 1 recites no detailed limitations regarding "the corresponding data of the model development machine (e.g., material of the machine; material is *relevant* to predicting the expected life, the characteristics and operations of the machine)" and how to use the "variations in the compared data" to "update at least one of an estimator and a model". Therefore, for the purpose of claim examination with the broadest reasonable interpretation, Quist's "refining the weighting parameters and downloads the parameters to local monitoring devices" anticipates the argued limitation.

5-3. Applicants' argument (3) is not persuasive. Without variations in the *compared* data, there is no motivation to refine the weighting parameters. Furthermore, claim 7 recites no detailed limitations regarding how to use the "variations in the computed parameter and the estimated parameter" to "update at least one of an estimator and the delivered neural network model". Therefore, for the purpose of claim examination with the broadest reasonable interpretation, Quist's "refining the weighting parameters and downloads the parameters to local monitoring devices" does anticipate the argued limitation.

5-4. Applicants' arguments (4) and (5) are not persuasive. Quist et al. disclose in column 5, lines 27-35, "Some or all of the local parameters generated by these local monitoring devices 12 will then be communicated to the personal computer 14 which can use these local parameters to generate "site-wide" updated parameters for feedback to the local monitoring devices 12. In this embodiment, each "intelligent" local monitoring device 12 can learn from its own motor and receive information derived from an analysis of all of the motors that communicate with the personal computer." Therefore, each local monitoring device has information of its own and of

all the other machines. Quist et al. further disclose in column 12, line 61, through column 13, line 45, "… (i) a normalization routine which receives the raw information from the sensors 34a-34e, 35 and 36 and normalizes the raw information to provide normalized information about the state of the machine 11 … to conform the raw sensor data--which is affected by load and environmental conditions--to data acceptable for use in the model, normalization is required. … $T_{ambient}$ represents the ambient temperature of the environment; …" Furthermore, claim 10 recites no detailed limitations regarding "the data" (e.g., ambient temperature is *relevant* to the modeled parameters, characteristics, and operations of each respective machine)" and the "function" of "the data". Therefore, for the purpose of claim examination with the broadest reasonable interpretation, Quist's "normalization routine" and "having information of its own and of all the other machines" do determine a level of variability of the characteristics and operation of each machine as a *function* of the *data*, which anticipates the argued limitations.

5-5. Applicants' argument (6) is not persuasive. Quist et al. disclose in column 16, lines 55-60, "Another important operating parameter that may be monitored by the local monitoring device 12 is the total elapsed running time of the electric machine." For the purpose of claim examination with the broadest reasonable interpretation, Quist's "total elapsed running time" anticipates the argued "aging factor". Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

6. **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kamini S Shah/

Supervisory Patent Examiner, Art Unit 2128

/Herng-der Day/
Examiner, Art Unit 2128

June 17, 2008